1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

enemies, they settled down in one place. At the same time, however, they refrained from forming ties of kinship with the Kamchadal, thus preserving their language and customs intact. Now they have become Russianized, like the Kamchadal, and in no way differ from them. "Koryaki,"[1] the name of their settlement, is the sole reminder of their origin.

At the present time the camps of the Reindeer Koryak reach as far south along the western slope of the Kamchatka Ridge as the fifty-fifth degree of north latitude:[1] and, according to Slunin, a few families will sometimes even reach Bolsheretzk.[2] The Reindeer Koryak have also spread farther northward than at the time of the intertribal wars. Then, according to tradition, the southern Chukchee camps were separated from the northern Koryak camps by a stretch of desert land, which the Chukchee would cross from time to time to attack the Koryak. Now the Chukchee and Koryak camps wander peacefully together upon the table-land of the Palpal.

I am inclined to suppose that no changes have occurred in the distribution of the Koryak in the northeastern region. The northeastern branch of the Koryak, the Kerek, have held themselves aloof from Russian influence, and until recently have been very little known.

The western boundary-line of the Koryak territory is formed, now as formerly, by the Stanovoi, or, as Maydell calls it, the Kolyma Ridge. But in winter, for purposes of squirrel-hunting, a few camps wander across the Stanovoi Ridge into the region of the Kolyma River, as far as its tributaries Omolon and Korkodon, and return in the spring. According to traditions of the Korkodon Yukaghir, the Koryak in olden times crossed the Stanovoi Ridge to wage war against them.

At the present time the Koryak territory is situated mainly in the two districts of Gishiga and Petropavlovsk. The Gishiga district has an area of 81,553 square miles, and that of Petropavlovsk 149,467 square miles. According to official data, there are in the Gishiga district 0.9 inhabitants to a square mile, and in that of Petropavlovsk 0.45 inhabitants to a square mile. The population is, of course, concentrated near the mouths of the rivers, in the river-valleys, and in places where reindeer-food is abundant. Between these inhabited places are large stretches of uninhabited desert land.

To understand Koryak culture in so far as it depends upon environment, it is necessary to give here a brief description of the nature of that region.

Orography. — The Koryak territory may be called a highland rather than a lowland country, but nowhere do the elevations reach any considerable height. They are either spurs of mountain-chains which lie outside of the Koryak country, or are small elevations forming the watersheds within the country. The Stanovoi Ridge sends a few such small spurs eastward, which

[1] See Part I, map.

[2] See Slunin, I, p. 450.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

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form the divides between the Varkhalam, Gishiga, Oklan, Penshina, and other rivers. The Nalginski spur, at the north of the Koryak territory, abuts against the Palpal Mountains, and separates the river system of the Anadyr from the rivers of the Okhotsk Sea. Former travellers[1] thought that the mountain-ridge of Kamchatka, with its volcanoes, represented an isolated elevation having nothing in common with the elevations proceeding from the Stanovoi Ridge, and that, sloping gradually northward, it disappeared in the mossy tundra of the Parapol Dol (Parapol Valley). However, according to Slunin,[2] the Kamchatka Ridge, though sloping northward, turns sharply away toward the east near the Parapol Dol, and at 170° east of Greenwich meets the plateau-like elevation of the Palpal.

Neither is the Taigonos Ridge, stretching along the eastern part of the Taigonos Peninsula, an isolated elevation. Passing in the north across the Gishiga tundra, it meets with a spur of the Stanovoi Ridge, and forms the watershed between the Gishiga and Paren Rivers.

One more elevation is to be mentioned in this connection; namely, the Mamechenski or Ma'meč Ridge. It extends between the villages of Rekunnok and Ma'meč, and ends abruptly on the seashore in vertical rocks, rendering that part of the country inaccessible from that side. Only in winter is it possible to pass under the ridge, by driving with dogs over the frozen sea. On the east the Ma'meč Ridge is separated from the northern portion of the Kamchatka Ridge by the tundra of the Parapol Dol.

The available data regarding the elevations in the Koryak country indicate their insignificance, and we infer that they interfere but little with communication between the various parts of the region; but, on the other hand, the marshy tundras make communication during summer difficult and in some places impossible. The Stanovoi Ridge, which forms the western boundary of the country, attains there a considerable height, though it is far lower than its southern part or than the Verkhoyansk Ridge.

Having crossed the Stanovoi Ridge by way of the upper part and the source of the Gishiga River, I ascertained the height of that pass to be 950 metres by barometric measurement, while the elevation of the surrounding heights I estimated at about 1150 metres.[3] The height of the crests of the interior ridges, however, is quite insignificant. Thus I determined the height of the following crests: —

1. Between the Varkhalam and Gishiga Rivers, a spur of the Stanovoi

[1] Maydell, II, p. 101; Dittmar (Russian), p. 332. [2] Slunin, I, p. 166.

[3] The highest pass of the Stanovoi Ridge on the way from Yakutsk to the Udskoi Ostrog (a settlement at the mouth of the Uda River), as determined by Middendorff (Reise, I, p. 1331), is 1290 metres. The two summits of the Stanovoi Ridge on the way from Yakutsk to Okhotsk are 1260 and 825 metres respectively (Erman, Reise, II, pp. 378, 382). The two summits between Yakutsk and Ayan are 940 and 996 metres respectively (Stephanovich, From Yakutsk to Ayan, Irkutsk, 1896, pp. 106-108). The height of the pass of the Verkhoyansk Ridge, between Yakutsk and Verkhoyansk, was found by me to be 1330 metres. Maydell as well as Dr. Bunge (see Maydell, I, p. 33) found it to be about 1500 metres.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

133 Ridge, 517 metres; 2. Between Top olovka and Kilimadja Rivers, a branch of the Taigonos Ridge, 540 metres; 3. The summit of the Taigonos Ridge on the way from Gishiginsk to Itkana, 500 metres; 4. The crest between the Talovka and Penshina Rivers, 420 metres; 5. Between Itkana and Paren, 360 metres; 6. Between the mouths of Shestakovka and Penshina Rivers, 360 metres.

The average height of the summits of the ranges of the Stanovoi Ridge on the way from Markova to Penshina River, along the Anadyr River, is determined by Maydell at about 300 metres.[1] The crest of the northern part of the Kamchatka Ridge is estimated to be no higher.[2]

Of the more or less extensive tundra regions, — that is, open expanses devoid of trees, and covered with moss, lichen, grassy hillocks, and creeping plants, — which in summer are converted into marshes, there are the following: —

1. The western part of the Taigonos Peninsula.

2. The Gishiga tundra, occupying the space from the lower course of the Kolyma River to the tributaries of the Paren River in the east.

3. The Parapol Dol, beginning near the village of Lesnovskoyè (Lesna). This tundra, broadening near Rekinniki (Rekinnok) village, stretches between the Mameche (Ma'meč) Ridge in the west and that of Kamchatka in the east, abutting on the heights of the Palpal in the north.

4. The Palpal table-land, occupying the entire northern part of the Koryak territory.

Besides, the entire littoral tract of the Okhotsk Sea as well as of the Bering Sea, for a distance of about fifteen miles, is nothing more nor less than a tundra, either sloping down towards the sea, as at Bering Sea, or rising above it, as near the shores of the Okhotsk Sea. Moreover, the summits of highlands, crests, and divides, and occasional glades in the river-valleys, at the places where they become wider, also form tundras. The former are usually covered with moss and lichen, and the latter with grass and grassy hillocks. The tundra of the coast is mainly grassy, with intermittent patches of brown moss hardly anywhere suitable for reindeer-breeding.

137 Mosses (*Muscineæ*, of the genera *Polytrichum*, *Hypnum*, *Sphagnum*, *Bryum*, and others) generally cover the most boggy and marshy parts of the
133 tundra; while the lichen (*Lichenes*, of the genera *Cetraria islandica*, *Cladonia rangiferina*, *Cetraria arctica*, *Stenocaulon paschale*, and others), which serves as pasturage for reindeer, creeps over less swampy places, on the summits and slopes of mountains and hills, over places having a stony substratum, or

[1] Maydell, I, p. 225.

[2] However, in the southern part of this ridge we find volcanoes, like the Klutchevskaya, 4839 metres high. As to the pass "Polkovnik," in the northern part of the Kamchatka Ridge, Slunin says (I, p. 194), that, on the day when he crossed it, his aneroid indicated a pressure of 738 mm.: consequently its absolute height was less than 300 metres.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

on rocks. The lichen and moss tundras are frequently intermixed, one forming islands in the other. Wherever the tundra is hilly, or where it has slopes which serve to drain certain parts of it, phanerogamous plants appear.

However, the large tundras enumerated above do not represent a continuous plain surface. At some places they are cut up by ravines or by dales watered by rivulets, or they form a hilly surface with mounds and rocks, denuded by atmospheric influences. In this manner, plain marshy, swampy spaces, covered with stagnant water which cannot penetrate the frozen soil, alternate with more or less dry earthy or stony slopes from which all precipitation is carried off, or with dank dome-like or oblong hills standing alone in the midst of the tundra, and often covered with bushes and trees. These hills are called yedoma (едома) by the Russian settlers of northern Siberia, — a name of unknown origin.

Neither are these tundras entirely devoid of arboreal vegetation, which is found here and there, forming, as it were, oases. Some ravines and the banks of some streams have a scant growth of slender willows, thin poplars, and crooked, stunted birches; and the summits and slopes of hills are often covered with low stone-pines, which serve as the only but excellent fuel for the nomadic Koryak and for travellers who occasionally spend the night in the tundra. The hard and solid wood of the stone-pine and its creeping roots burn slowly, and produce a strong heat.

Coasts. — The coasts of the Koryak territory, particularly those of the Okhotsk Sea, have many small bays, which evidently have proved favorable to the formation of permanent Maritime settlements. With the exception of the eastern shore of Kamchatka, almost the entire coast-line is a continuous steep rocky shore (either of granite or gneiss, as for instance on the Taigonos Peninsula, or of schistose rock), with reefs and small rocky islands lying near by, upon which the Koryak of former times used to seek shelter when attacked by enemies. Only the mouths of the rivers are sandy. For this reason the shores, particularly those of the bays of the Okhotsk Sea, are very difficult of access by vessels. Besides, the water in the bays is very shallow, and the sand-bars and sand-banks at the mouths of the rivers prevent vessels from coming close to shore.

The largest bays are those of Gishiga and Penshina in the Okhotsk Sea, and Baron Korff's Bay in Bering Sea. It is curious that on Steller's map of the Okhotsk-Kamchatka region the Taigonos Peninsula is not indicated, and the two bays which are separated from each other by that peninsula are thrown together under the name of Penshina Bay.[1] Gishiga Bay extends into the continent for about 170 miles. The head of Gishiga Bay is so shallow, that steamers have to anchor from sixteen to twenty miles below the

[1] See Steller, map opp. p. 12.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

mouth of Gishiga River; and only at high tide are the steamer-tugs able to enter the mouth of the river.

When a strong wind is blowing, steamers cannot lie at anchor, and, since storms are of frequent occurrence in the Okhotsk Sea, it often happens that steamers are compelled to stand off for a week, without being able to cast anchor. Once for two weeks a government steamer (until 1900, only once a year did a government steamer call at Gishiga) was unable to approach the mouth of the Gishiga; and, to avoid greater loss of time, she steamed farther north, to the Anadyr, without having discharged her cargo in Gishiga, and thus the inhabitants of Gishiga were left without provisions for the winter.

In former times, Penshina Bay, when its waters still swarmed with whales, was frequented by American whaling-schooners, which anchored near the Koryak villages. Even now American whaling-schooners enter Penshina Bay from time to time; but steamers have not yet visited it. So far its depth has been little sounded. In 1897 the steamer "Kotik," belonging to the Kotik Company,[1] made an attempt to cast anchor near the Kamenskoye settlement; but, the mouth of the river proving to be full of rocks, the attempt had to be given up. However, in 1895–96 the Russian schooner "Siberia" succeeded in coming close to the village and unloading its cargo.[2]

I arrived in Gishiga at the end of August, 1900, on the steamer "Khabarovsk" of the Russian Volunteer Fleet. In order to avoid loss of time, I wished to get to the Maritime Koryak of Penshina Bay before the opening of winter travel. In the summer, communication with the Koryak villages is interrupted. I wanted to avail myself of the steamer "Progress" of the Russian-American Gold-Mining Company, which was then about to leave Gishiga for Vladivostok. I applied to Mr. Shockley, the American engineer in charge of that expedition, for passage with them, for myself and my companions, over to the Itkana Koryak in Penshina Bay, on their way to Vladivostok. Unfortunately he did not grant my request, for the captain of the steamer thought it too risky to venture into a bay which had not been surveyed.

Baron Korff's Bay, in Bering Sea, is about thirty-five miles long. It is deep, and has several harbors suitable for steamers. There are a few other accessible bays in Bering Sea, such as the one at the mouth of Karagha River, sixteen miles long, and another one, called False Bay, on the western shore of Karagha Island, which is often visited by American schooners for walrus-hunting.[3]

Rivers and Lakes. — All those rivers of the Koryak territory which flow from the Stanovoi Ridge, its spurs, or the Kamchatka Ridge, are short

[1] The Russian word *kotik* (котикъ) means "sea-bear" (*Otaria ursina* L.). [2] See Slunin, I, p. 155.

[3] In August, 1897, Karagha Harbor and False Bay were visited by the British man-of-war H. M. S. "Linnet" see G. E. H. Barrett-Hamilton and H. O. Jones, A Visit to Karaginski Island, Kamchatka, in The Geographical Journal of the Royal Geographical Society, London, September, 1898, pp. 280–299).

1: Jochelson E-5 (1900-01) 1908 R14 Koryak R14

and rapid. The mountain-ridges from which these rivers take their source are not far from the seashore, which accounts for the steepness of the river-valleys. The length of the large rivers varies from forty to two hundred and fifty miles. Compared with the gigantic rivers flowing into the Arctic Ocean west of the Stanovoi Ridge, these rivers appear as pygmies. Of their rapidity one can judge from the fact that it is possible to row only seven miles up the Gishiga River, which, next to the Penshina, is one of the largest rivers of that region. Farther up the boat has to be towed.

The Penshina is to a certain extent an exception in this respect. Not only is it longer than all the other rivers of the Koryak territory, but in its lower course it is more in the nature of a large river traversing a plain. In the eighteenth century the cossacks plied the Penshina River in boats, on the way from Kamchatka to Oklansk[1] and farther to the north. Prior to the advent of the Russians, there was a large village of Maritime Koryak at the mouth of the Oklan River, the largest tributary of the Penshina. Fishing was the main industry of the inhabitants, and by it they subsisted.

Almost all the rivers of the Koryak territory have cut their way through the mountains. Piling up a rocky bed, they carry off in their rapid course the smaller fragments to the seashore, and either deposit them near the mouth of the river, or form sand-bars near by in the sea. Although some of the rivers flowing into Bering Sea — as, for instance, the Dranka and Karagha Rivers — have in their upper course all the characteristics of mountain-streams, when they reach the coastal tundra strip, they take a more quiet course, owing to which the bay near the mouth of the Karagha River offers a safe harbor.

Especially in the rainy season, during the summer, and when the snow is melting after the ice breaks up, the rivers are full and raging; but in dry seasons they are quite shallow. In summer, when there are no rains, it is possible to wade across the Gishiga River at a distance of only forty-five miles from its mouth. Owing to these conditions, the rivers of the Koryak territory cannot be depended upon as a means of communication between the various branches of the tribe.

The unusual force and height of the tides in the long and narrow Gishiga and Penshina Bays of the Okhotsk Sea also tend to the formation of sand-bars, and they are destructive to the coastal rocks. The rocky mouth of the Penshina River near the village of Kamenskoye is blocked by large bowlders and small rocky islands. Up to this time no one has made any regular observations of the tides in the Okhotsk Sea; but, according to information obtained from Russian seamen, the spring-tides and neap-tides in

[1] Oklansk (Оклавскъ) was a fortified Russian settlement (see Chapter XIV) founded by the cossacks in 1650, after the destruction of the Koryak village of the same name.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

133 Gishiga Bay, or, as they are locally called, the "larger and smaller waters," alternate regularly every two weeks.

The tides move with a rapidity of from one and a half to two and a half miles per hour, reaching a height of from four to eight metres. According to Slunin's data,[1] the tides of Penshina Bay have a still greater force and height. At the mouth of the Penshina River the tide reaches a velocity of seven miles per hour, and a height of from seven to ten metres. In the village of Kamenskoye I could see the tide crashing through the ice near the shore, and driving it into the mouth of the Penshina River. Enormous blocks of ice were piling up on each other, and wearing away the steep and rocky shore upon which the village is situated. At the mouth of the Tighil River the tide sometimes rises to a height of from five to seven metres. The height of the tide evidently depends upon the degree of exposure of a certain point. Near Okhotsk, for instance, where the sea is quite open, the tide does not rise higher than from two and a half to four metres.

Owing to the rolling surface of the country and to the absence of vast plains, the lakes in that region, in spite of the abundance of tundra spaces, are exceedingly limited in number as well as in size. In this respect the Koryak region differs strikingly from the vast plain of the Kolyma tundra, which contains thousands of lakes connected with each other by small rivulets. [361] These lakes abound in fish, rendering them attractive to the settled population of the northern Yakut as well as to the nomadic Yukaghir. The rapidity of the rivers, and the small number of lakes, may offer an explanation of the absence of a settled population in the interior of the Koryak territory.

[136] Of the lakes of the Gishiga tundra of more or less considerable size, I mention here the Kharitonovskoye, Chukchee (Chukotskoye), Ankudin (Ankudinovskoye), and Paren (Parenskoye) Lakes. They are said to abound in pike and crucian-carp.[2] However, none of the inhabitants of that region ever think of catching them. Some small lakes in which rivers take their rise are situated in the mountain-valleys. The largest lakes in northern Kamchatka are Lake Pallan, from which Pallan River rises, and Great Lake, in the Parapol tundra, forming the source of a tributary of the Talovka River.

132 CLIMATE. — In the entire vast country of the Koryak, meteorological observations, so far, are carried on in one place only, the Gishiginsk settlement (and this regularly, only since 1901), it being a second-class meteorological branch station of the principal physical observatory of St. Petersburg. However, from the fragmentary observations of travellers, among them the observations of the author during his travels over the country, the conclusion may be drawn that the climate of the interior is somewhat more severe than it is on the strip of land near the shore where Gishiginsk is situated, and

[1] Slunin, I, p. 147.

[2] See Slunin, I, p. 360.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

225 411 head of such a spear (a'ut) is shown in Fig. 136, *a*. It is 15 cm. in length. The lower narrow part of the a'ut is fitted into a hollow at the thicker end of the wooden spear-shaft, which is wound with a thong. When the whale is dead, its carcass, which is studded with harpoons and spears, is taken in tow by all the boats that have participated in the hunt, as shown in Fig. 247, and is hauled to the village.

Fig. 93 ($\frac{1}{10}$). Whaling-Spear. Length, 204 cm.

Krasheninnikoff relates[1] that in his time the people of Alutor caught whales in the bays in enormous nets made of smoke-dried walrus-hide thongs as stout as a man's arm.[2]

136] White whales *(Delphinapterus leucas)* are hunted in the same way as thong-seals. The white whale (Russian belukha [бѣлуха]; Koryak, yiyi'ñin), too, comes into the bays and river-estuaries with the flood-tide in pursuit of fish, and goes back to the open sea with the ebb-tide. The full-grown white whale measures four metres and upward in length. Not infrequently it runs into the nets set for catching thong-seals. Both sealing-harpoons with iron heads and whaling-harpoons with stone heads are used in hunting white whales. When the white whale is worn out from wounds, it is despatched with a stone spear in the manner described above. If the white whale does not hurry to return to sea with the ebb-tide, while the water is still high, the hunters block the river-mouth in their kayaks, and drive them back into the river by means of shouts and by striking the water with their oars until the estuary becomes shallow and the white whale remains almost high 133 and dry. It is then easily killed with rifles and spears. In this way the Koryak sometimes shut whole shoals of white whales within the river-mouths, 125 as was the case in the summer of 1899, when the Koryak hemmed in sixteen white whales in the estuary of the river Ovekova. Still the number of these animals caught is insignificant in comparison with the enormous quantities found in the Koryak waters. Thus during the summer of 1900 the inhabitants of Kamenskoye caught nine white whales; those of Itkana, six; and 492 those of Kuel, only two. Plate XXVIII, Fig. 2, shows how the inhabitants of Kuel haul a white whale caught in seal-nets on dog-sleds over the coast-ice to the settlement. This photograph was taken in the beginning of October.[3]

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[1] See Krasheninnikoff, I, p. 421.

[2] In looking over the annual reports of the commander of the district, in the Gishiga archives I found some data as to the number of whales killed by the Koryak in certain years. Judging by other statistical data contained in these reports, these numbers are doubtless also below the actual. A catch of two whales is recorded for 1848 in Paren, and of two whales in Kamenskoye; for 1856, three whales in Kamenskoye; for 1886, six whales in the whole of Penshina Bay.

[3] See description of festival, Part I, pp. 69–77.

22:Barrett-Hamilton and Jones--282-284 N-2 (1897) 1898 Koryak-1-4
116, 133

"The island [Karaginski--Analyst] has a length of about 67 miles, exclusive of the reef which runs seawards for a distance of about 6 miles from the southern extremity, Cape Krasheninikoff. Its breadth varies from about 15 to 18 miles, except at the southern end, where it gradually narrows to a width of about 2 miles, finally terminating in the reef above alluded to. The trend of the island is south-south-west and north-north-east, and its northern extremity, Golenischeva points, lies in about lat. 59°15′ N. and long. 164°41′ E.; Cape Krasheninikoff, at the south-eastern extremity, lies in about lat. 58°22′ N., long. 163°30′ E.

From the low southern point the eastern coast of the island very soon rises into a range of mountains, which probably do not exceed 2000 feet in height. Towards Bering sea and the north of the island the range seems to terminate in series of fine precipices, at the feet of which, probably, is the home of many seals and perhaps of walrus.

Westwards the slope is gradual, and ends in an escarpment of a height of from 20 to 30 feet. This escarpment has been cut through in several places by some small streams, which issue from the undulating central portion of the island, and between it and the shingly beach there is, at the village which we visited, a narrow strip of thickly grassed ground just raised above the level of the shingle. This strip expands northwards into a large marsh, which forms the north-western portion of the island, and is drained by a river running into False bay, the spacious but deceptive harbour where we anchored.

The harbour is protected by one of the peculiar Kamchatkan sandspits, which runs out for some distance into Ukinsk bay. There are, we believe, one or two small lakes in the interior of the island.

In the evening of August 20, 1897, H.M.S. Linnet approached Cape Ozerni, on the mainland of Kamchatka—a point which forms the southern termination of the entrance to Ukinsk bay, here having a breadth from Ozerni to Krasheninikoff capes of about 40 miles. No dangers are marked on the chart in connection with the former headland, and we were considerably and disagreeably surprised to find running out from the cape, for a distance of about 1 1/2 miles in a north-easterly direction, a reef, on which a heavy swell was breaking so violently that huge sheets of water and spray were being hurled into the air sometimes [283] to a height of about 30 to feet. The whole coast of this part of Kamchatka is, however, so little known, that it would be hard indeed to find a part of the world the charts of which are less reliable.

It was our intention to run up Ukinsk bay and anchor in Karaga harbour on the mainland just opposite to Karaginski island, before visiting the island itself. Little as Karaga harbour itself is known, the coast both north and south of it is even less so, not having been charted at all north of Cape Kuzmischeff, as well as for a considerable distance between Cape Ozerni and Karaga harbour on the south, and it was therefore necessary to approach our destination with extreme caution.

From Cape Ozerni to Karaga harbour is a distance of about 80 miles, and during the

night we stood off the land, waiting for daylight to help us in our run up Ukinsk bay. On the morning of August 21 we ran up the channel, very soon getting into calm and shallow water, the soundings, which had showed bottom at 90 fathoms at the entrance, gradually decreasing to 10 fathoms as we neared the harbour.

The 21st was a brilliant, clear, and warm day, and as soon as the morning mist cleared off the land, we had an excellent view of our surroundings. Almost to the southward lay the entrance to the bay through which we had passed, the land here being high, and showing some very finely peaked mountains. Further north on the mainland, the chain of magnificent mountains which forms the backbone of Kamchatka retires to a distance of from about 30 to 40 miles from the [284] coast, leaving between it and the sea a stretch of undulating bush-covered tundra land, gradually ascending to their base. These mountains are, for Kamchatka, apparently of no great height, and the highest summits do not perhaps exceed 4000 feet. Yet they were boldly peaked and outlined in a manner exactly like the higher mountains in the southern part of the peninsula, to which they were only inferior in their lesser height. There was little snow remaining on them, and, if one may judge of this from the much greater quantity which we saw on the western slopes of the far smaller Karaginski mountains, the western side of the range must be that on which most snow lies.

From these mountains several rivers run down into Ukinsk bay, and at the mouth of one

of these—the Karaga river—are the village and harbour for which we were bound, and which, in the clear weather, we had no trouble in making."

22: Barrett-Hamilton and Jones--284 N-2 (1897) 1898 Koryak
116, 133, 136

"On our right lay Karaginski island, its far lesser hills showing many more snow-patches than those of the mainland, and in the distance bearing a striking resemblance to Bering island, from which, however, it differs in being a good deal less mountainous.

Birds were numerous in the channel, and we noted a few terns, as well as gulls of more than one species. Red-necked phalaropes were very plentiful, as they are elsewhere in Kamchatka, and a fine adult albatross (Diomedea albatrus) rose from the water at our approach. Duck of several species were also in abundance."

22:Barrett-Hamilton and Jones--284-285 N-2 (1897) 1898 Koryak -1-2
116, 133

"Karaga harbour is of fair size, but with little depth of water, and the bar at its mouth, on which the water shoals (1) to from 5 to 3 fathoms, must always effectually

1. We are indebted to Lieut. H. A. Gillett, of H. M. S. Linnet, for the information that the bar has a depth at low water of 3 fathoms at the south, and at the north of 4 fathoms. At its centre it is supposed to deepen to 5 fathoms.

prevent the approach of large vessels. H. M. S. Linnet was probably the first man-of-war of any nationality, and certainly the first English man-of-war, to enter it. Like several (2) of the other Kamchatkan harbours, it is sheltered by a long pointed sandspit,

2. As, for instance, at Petropavlowsk, and also at Berevinskaya bay, near Cape Shipunski; in the latter case, on the authority of F. H. H. Guillemard (see 'Cruise of the Marchesa,' p. 216, 1st edit.).

which runs out for some little distance into Unkinsk bay. Right inside of this, and close to the shore, a second sandspit runs out in a nearly opposite [285] direction, cutting off, except at one point, a considerable part of the inner extent of the harbour; on this

second spit a choppy sea sometimes breaks with some force.

The harbour is well protected, but from the south-east a sea dangerous to boats might set up with a south-easterly gale. There is good holding ground on mud or sand, with an average depth of 7 to 9 fathoms after passing the bar. The Linnet anchored in 4 fathoms close to the sandspit, 1 1/2 miles south-east of the village."

22:Barrett-Hamilton and Jones--293 N-2 (1897) 1898 Koryak
116, 133

"At 11 a.m. on August 22, we steamed across the 25-mile channel which separates Karaga harbour from False bay, in Karaginski island, and anchored in the latter at about 4.30 p.m. of the same day.

The only excitement of the passage was the sighting of a walrus and its young lying on the sandspit which forms the harbour. A boat was lowered to go after them, but the animals winded us and took to the sea.

False bay and harbour are formed by a spit of sand extending in a south-westerly direction from the western coast of the island, rather near its north-western extremity on the side of Ukinsk bay opposite to Karaga harbour. It is well protected from winds except from south to west. There is no bar, and there is a depth of 9 fathoms of water gradually lessening to 5 at a distance of about 2 miles from the head of the bay, where the water rapidly shoals to 1 1/2 fathom. The holding-ground is good."

22:Barrett-Hamilton and Jones--293-294 N-2 (1897) 1898 Koryak
116, 133, 177

"In the harbour [at False Bay on Karaginski Island--Analyst] we were easily able to make out a few scattered balagans—not gathered together to form a village as at Karaga—as well as, what was quite unexpected, a rectangular log-built building, looking just like the store of some company. The meaning of this was afterwards explained to us by the natives, who informed us that some twenty or thirty years ago an American schooner had landed a party of men here, and that they had built the store to hold the skins and ivory which [294] they took while on the island. According to the account of the natives, they quite 'cleared the place out' of walrus, which explains the fact that we saw only two. The natives, however, had a few tusks for sale."